

Engineering and Public Policy, MS (Boston)

For program contact information, please visit the College of Engineering website (<https://cee.northeastern.edu/academics/graduate-studies/ms-cepp/>).

The purpose of this degree is to provide students with a background in engineering with the tools necessary to conduct robust policy analysis. It includes required core courses from the Department of Civil and Environmental Engineering and the School of Public Policy and Urban Affairs, complemented by electives in engineering and public policy, which can be met by two courses and a master's report (recommended), or by one course and a thesis, or by three courses. A minimum of 16 semester hours must be taken in the College of Engineering.

Degree Requirements	With Project	With Thesis	Coursework Only
Required core courses	20 SH	20 SH	20 SH
Other electives	8 SH	4 SH	12 SH
Master of Science report/thesis	4 SH	8 SH	
Minimum semester hours required	32 SH	32 SH	32 SH

Graduate Certificate Options

Students enrolled in a master's degree have the opportunity to also pursue one of the many engineering graduate certificate options in addition to or in combination with the MS degree. Students should consult their faculty advisor regarding these options (<https://catalog.northeastern.edu/graduate/engineering/graduate-certificate-programs/>).

GORDON INSTITUTE OF ENGINEERING LEADERSHIP

Master's Degree in Engineering and Public Policy with Graduate Certificate in Engineering Leadership

Students may complete a Master of Science in Engineering and Public Policy in addition to earning a Graduate Certificate in Engineering Leadership (<https://catalog.northeastern.edu/graduate/engineering/multidisciplinary/engineering-leadership-graduate-certificate/>). Students must apply and be admitted to the Gordon Engineering Leadership Program in order to pursue this option. The program requires fulfillment of the 16 semester-hour curriculum required to earn the Graduate Certificate in Engineering Leadership, which includes an industry-based challenge project with multiple mentors. The integrated 36-semester-hour degree and certificate will require 20 hours of advisor-approved technical courses.

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Sustainable Engineering and Systems Modeling Requirements

Code	Title	Hours
Complete 12 semester hours from the following:		12
CIVE 5261 or PPUA 5261	Dynamic Modeling for Environmental Investment and Policymaking Dynamic Modeling for Environmental Decision Making	
CIVE 5275	Life Cycle Assessment of Materials, Products, and Infrastructure	
CIVE 5363	Climate Science, Engineering Adaptation, and Policy	
CIVE 5368	Air Quality Management	
CIVE 6566	Sustainable Urban Transportation: Netherlands	
CIVE 6777	Climate Hazards and Resilient Cities Abroad	
CIVE 6778	Climate Adaptation and Policy Abroad	
CIVE 7100	Time Series and Geospatial Data Sciences	
CIVE 7110	Critical Infrastructure Resilience	
CIVE 7150	Data-Driven Decision Support for Civil and Environmental Engineering	
CIVE 7151	Urban Informatics and Processing	
CIVE 7155	Dynamics and Control of Infrastructure Systems	
EECE 5670	Sustainable Energy: Materials, Conversion, Storage, and Usage	
IE 5500	Systems Engineering in Public Programs	
IE 5640	Data Mining for Engineering Applications	
IE 6200	Engineering Probability and Statistics	
IE 7280	Statistical Methods in Engineering	
SBSY 5100	Sustainable Design and Technologies in Construction	

SBSY 5200	Sustainable Engineering Systems for Buildings
SBSY 5400	Sustainable Building Systems Seminar

Public Policy and Analysis Requirements

Code	Title	Hours
Complete 8 semester hours from the following:		8
INSH 5301	Introduction to Computational Statistics	
INSH 6300	Research Methods in the Social Sciences	
INSH 6500	Statistical Analysis	
INSH 7400	Quantitative Analysis	
LPSC 7311	Strategizing Public Policy	
PPUA 5246	Participatory Modeling for Collaborative Decision Making	
PPUA 5260	Ecological Economics	
PPUA 5263	Geographic Information Systems for Urban and Regional Policy	
PPUA 6212	Research Toolkit for Urban and Regional Policy: Project Management	
PPUA 6502	Economic Analysis for Policy and Planning	
PPUA 6506	Techniques of Policy Analysis	
PPUA 6509	Techniques of Program Evaluation	
PPUA 6532	Building Resilience into Local Government	
PPUA 7237	Advanced Spatial Analysis of Urban Systems	

Options

Complete one of the following options:

COURSEWORK OPTION

Code	Title	Hours
Complete 12 semester hours from the Elective Course List below. (p. 3)		12

PROJECT OPTION

Code	Title	Hours
CIVE 7945	Master's Project	4
Complete 8 semester hours from the Elective Course List below. (p. 3)		8

THESIS OPTION

Code	Title	Hours
CIVE 7945	Master's Project	4
CIVE 7990	Thesis	4
Complete 4 semester hours from the Elective Course List below. (p. 3)		4

In addition to completing the thesis course, students must successfully complete the thesis submission process, including securing Committee and Graduate School of Engineering signatures and submission of an electronic copy of their MS Thesis to ProQuest.

Optional Co-op Experience

Code	Title	Hours
Complete the following. Students must complete ENCP 6100 to qualify for co-op experience:		
ENCP 6100	Introduction to Cooperative Education	1
ENCP 6964	Co-op Work Experience	0
or ENCP 6954	Co-op Work Experience - Half-Time	
or ENCP 6965	Co-op Work Experience Abroad	
or ENCP 6955	Co-op Work Experience Abroad - Half-Time	

Program Credit/GPA Requirements

32 total semester hours required (33 with optional co-op)

Minimum 3.000 GPA required

ELECTIVE COURSE LIST

Code	Title	Hours
CIVE 5150	Climate and Atmospheric Change	
CIVE 5250	Organic Pollutants in the Environment	
CIVE 5271	Solid and Hazardous Waste Management	
CIVE 5280	Remote Sensing of the Environment	
CIVE 5281	Coastal Dynamics and Design	
CIVE 5300 and CIVE 5301	Environmental Sampling and Analysis and Lab for CIVE 5300	
CIVE 5670	Global Biogeochemistry	
CIVE 7230	Legal Aspects of Civil Engineering	
CIVE 7392	Special Topics in Environmental Engineering (Equity in Civil and Environmental Engineering)	
EMGT 6225	Economic Decision Making	
ENVR 5210	Environmental Planning	
ENVR 5260	Geographical Information Systems	
ENVR 6102	Environmental Science and Policy Seminar 2	
INSH 7400	Quantitative Analysis	
INTL 5100	Climate and Development	
LPSC 7311	Strategizing Public Policy	
LPSC 7312	Cities, Sustainability, and Climate Change	
PHTH 5214	Environmental Health	
PHTH 5230	Global Health	
PPUA 5249	Sustainable Urban Coastal Policy	
PPUA 5262	Big Data for Cities	
PPUA 5263	Geographic Information Systems for Urban and Regional Policy	
PPUA 5264	Energy Democracy and Climate Justice: Technology, Policy, and Social Change	
PPUA 5268	International Environmental Policy	
PPUA 5270	Food Systems and Public Policy	
PPUA 6101	Environmental Science and Policy Seminar 1	
PPUA 6201	The 21st-Century City: Urban Opportunities and Challenges in a Global Context	
PPUA 7346	Resilient Cities	